No. 9100187

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (7 U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'9521'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this 31st day of January in the year of our Lord one thousand nine hundred and ninety-four.*

Attest:

Kenneth A. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Espy

Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.

3. VARIETY NAME
9521

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
700 Capital Square
400 Locust Street
Des Moines, IA 50309

5. PHONE *(Include area code)*
515-270-3414

FOR OFFICIAL USE ONLY

PVPO NUMBER
9100187

FILING
Date: May 15, 1991
Time: ☐ A.M. ☐ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2,150.—
Date: May 13, 1991
Certificate Fee: $ 250.00
Date: Dec. 20, 1993

6. GENUS AND SPECIES NAME
Glycine max

7. FAMILY NAME *(Botanical)*
Leguminosae

8. CROP KIND NAME *(Common Name)*
Soybean

9. DATE OF DETERMINATION
July, 1985

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Iowa

12. DATE OF INCORPORATION
1926

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

James E. Miller, Ph.D.
7301 NW 62nd Ave., P.O. Box 85
Johnston, IA 50131-0085

Mary Helen Mitchell (copy)
700 Capital Square, 400 Locust Street
Des Moines, IA 50309
PHONE *(Include area code)*:

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

a. ☒ Exhibit A, Origin and Breeding History of the Variety.
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety.
d. ☐ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 05/15/91.
g. ☒ Filing and Examination Fee ($2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)*
☐ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES *(If "YES," through* ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____ .)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
James E. Miller	Worldwide Soybean Research Director	5/9/91
SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE

EXHIBIT A

ORIGIN AND BREEDING HISTORY

9521

Summer 1982	Original cross was made at Union City, TN. Cross number was PX4423. Parentage = 9531/9561 9531 = Centennial//Pickett 71/J74-45 F2 Bulk 9561 = Mack/Forrest
Winter 1982-83	F1 plants grown in greenhouse at St. Joseph, IL.
Summer 1983	F2 advanced to F3 by modified single seed descent at Union City, TN.
Winter 1983-84	F3 advanced to F5 by 2 cycles of modified single seed descent in Hawaii.
Summer 1984	F5 bulks of PX4423 grown at Union City and single plants selected.
Summer 1985	F5-derived plant rows of PX4423 were grown at Union City. Row UN5-25270 was selected and composited.
Summer 1986	PX4423-07 was entered in UNC512 as entry 37 and planted as 2 replications at 2 locations.
Summer 1987-90	Subsequent wide area testing over these 4 years has shown 9521 to be uniform and stable for all plant traits from generation to generation with no evidence of variants. 7.0 acres of 9521 (breeder's seed) were grown in Tennessee during 1989. 100 acres of parent seed (Foundation seed equivalent) were grown in Arkansas during 1990.

PVP application No. 9100187, '9521', Exhibit B ammended July 21, 1992

NOVELTY STATEMENT

Variety 9521 is most similar to variety 9531. Both varieties have resistance to physiologic race 3 of the Soybean Cyst Nematode (Heteroda glycines Ichinohoe) and resistance to several races of Phytophthora megasperma f.sp.glycinea from the gene Rpsic. However, 9521 has better lodging resistance than 9531 (Table 2), and is susceptible to Cyst Nematode race 4, whereas 9531 is resistant to race 4.

PVP application No. 9100186, '9583', Exhibit E ammended July 21, 1992

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Variety '9583' was developed by Pioneer Hi-Bred International, Inc., for which it solicits a certificate of protection.

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (Glycine max L.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Pioneer Hi-Bred International, Inc.		9521

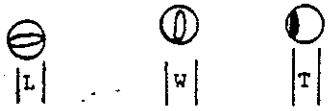
ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
700 Capital Square
400 Locust Street
Des Moines, IA 50309

FOR OFFICIAL USE ONLY
PVPO NUMBER
9100187

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., [0][9]). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:

[3]



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ **2. SEED COAT COLOR: (Mature Seed)**

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other *(Specify)* _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[2] 1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ **4. SEED SIZE: (Mature Seed)**

[1][2] Grams per 100 seeds

★ **5. HILUM COLOR: (Mature Seed)**

[6] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other *(Specify)* _____

★ **6. COTYLEDON COLOR: (Mature Seed)**

[1] 1 = Yellow 2 = Green

★ **7. SEED PROTEIN PEROXIDASE ACTIVITY:**

[ ] 1 = Low 2 = High

★ **8. SEED PROTEIN ELECTROPHORETIC BAND:**

[ ] 1 = Type A ($SP1^a$) 2 = Type B ($SP1^b$)

★ **9. HYPOCOTYL COLOR:**

[4] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ **10. LEAFLET SHAPE:**

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other *(Specify)* _____

4

11. LEAFLET SIZE:

[2] 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[2] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

★ **13. FLOWER COLOR:**

[2] 1 = White 2 = Purple 3 = White with purple throat

★ **14. POD COLOR:**

[2] 1 = Tan 2 = Brown 3 = Black

★ **15. PLANT PUBESCENCE COLOR:**

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[2] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

★ **17. PLANT HABIT:**

[1] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ **18. MATURITY GROUP:**

[0 8] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

★ **19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)**

BACTERIAL DISEASES:

★ [2] Bacterial Pustule *(Xanthomonas phaseoli* var. *sojensis)*

★ [0] Bacterial Blight *(Pseudomonas glycinea)*

★ [2] Wildfire *(Pseudomonas tabaci)*

FUNGAL DISEASES:

★ [0] Brown Spot *(Septoria glycines)*

Frogeye Leaf Spot *(Cercospora sojina)*

★ [0] Race 1 [0] Race 2 [0] Race 3 [0] Race 4 [0] Race 5 [ ] Other *(Specify)* _____

[0] Target Spot *(Corynespora cassiicola)*

[1] Downy Mildew *(Peronospora trifoliorum* var. *manshurica)*

[0] Powdery Mildew *(Microsphaera diffusa)*

★ [0] Brown Stem Rot *(Cephalosporium gregatum)*

[1] Stem Canker *(Diaporthe phaseolorum* var. *caulivora)*

5

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

★ [0] Pod and Stem Blight *(Diaporthe phaseolorum* var; *sojae)*

[0] Purple Seed Stain *(Cercospora kikuchii)*

[0] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma* var. *sojae)*

★ [0] Race 1 [2] Race 2 [0] Race 3 [0] Race 4 [0] Race 5 [0] Race 6 [0] Race 7

[0] Race 8 [0] Race 9 [1] Other *(Specify)* Race 19

VIRAL DISEASES:

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

★ [0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

★ [0] Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

RWS 7-17-92

Soybean Cyst Nematode *(Heterodera glycines)*

★ [1] Race 1 [0] Race 2 [2] Race 3 [X] Race 4 Susceptible [2] Other *(Specify)* Race 5 Resistant

[0] Lance Nematode *(Hoplolaimus Colombus)*

★ [0] Southern Root Knot Nematode *(Meloidogyne incognita)*

★ [0] Northern Root Knot Nematode *(Meloidogyne Hapla)*

[0] Peanut Root Knot Nematode *(Meloidogyne arenaria)*

[0] Reniform Nematode *(Rotylenchulus reniformis)*

[ ] OTHER DISEASE NOT ON FORM *(Specify):* _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

★ [0] Iron Chlorosis on Calcareous Soil

[ ] Other *(Specify)* _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] Mexican Bean Beetle *(Epilachna varivestis)*

[0] Potato Leaf Hopper *(Empoasca fabae)*

[ ] Other *(Specify)* _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9531	Seed Coat Luster	9531
Leaf Shape	9531	Seed Size	9531
Leaf Color	9531	Seed Shape	9531
Leaf Size	9531	Seedling Pigmentation	9531

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
9521 Submitted	132	2.2	97			41.0	21.3	12	
9531 Name of Similar Variety	133	2.5	96			42.8	20.5	12	

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A_2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

Table 2. Variety 9521 (X1) vs '9531' (X2) for lodging.

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Data is presented separately for 1988, 1989 and 1990 with overall statistics following.

REP	X1	X2	X1-X2	(X1-X2)2
1988				
1	7.5	7	0.5	0.25
2	7.5	7	0.5	0.25
3	5.7	5	0.7	0.49
4	7.7	7.3	0.4	0.16
5	7.3	6.3	1	1
6	7.7	6.7	1	1
7	6	5.7	0.3	0.09
sum	49.4	45	4.4	3.24
ave	7.057	6.429	0.629	

SD**2= 0.01129
SD= 0.10627
D/SD= 5.91506 **
DF= 6

n= 7

ave 9521 = 7.05714
ave 9531 = 6.42857

1989				
8	7	6.7	0.3	0.09
9	7	6.7	0.3	0.09
10	7	6.3	0.7	0.49
11	8	7.3	0.7	0.49
12	5.7	5	0.7	0.49
13	5.5	4.5	1	1
14	7	7	0	0
15	6.3	5	1.3	1.69
16	7	5.7	1.3	1.69
17	7.5	7	0.5	0.25
18	8.3	8	0.3	0.09
sum	76.3	69.2	7.1	6.37
ave	6.936	6.291	0.645	

SD**2= 0.01625
SD= 0.12747
D/SD= 5.06368 **
DF= 10

n= 11

ave 9521 = 6.93636
ave 9531 = 6.29091

1990						
19	6.3	6	0.3	0.09	SD**2=	0.01707
20	3	2	1	1	SD=	0.13065
21	3.3	2.7	0.6	0.36	D/SD=	5.02106 **
22	4.7	3.3	1.4	1.96	DF=	24
23	3.3	2.3	1	1		
24	8.7	8	0.7	0.49	n=	25
25	7	6.7	0.3	0.09		
26	8.5	8.5	0	0	ave 9521 =	6.384
27	8	7	1	1	ave 9531 =	5.728
28	7	6.5	0.5	0.25		
29	6.5	6.5	0	0		
30	6.7	4	2.7	7.29		
31	6	5	1	1		
32	9	8.7	0.3	0.09		
33	8	8	0	0		
34	4.7	4.7	0	0		
35	3	3	0	0		
36	7.3	7	0.3	0.09		
37	4.7	3	1.7	2.89		
38	9	9	0	0		
39	8.5	7	1.5	2.25		
40	6.5	6	0.5	0.25		
41	7.5	7	0.5	0.25		
42	3.7	3.3	0.4	0.16		
43	8.7	8	0.7	0.49		
sum	159.6	143.2	16.4	21		
ave	6.384	5.728	0.656			

OVERALL				
1	7.5	7	0.5	0.25
2	7.5	7	0.5	0.25
3	5.7	5	0.7	0.49
4	7.7	7.3	0.4	0.16
5	7.3	6.3	1	1
6	7.7	6.7	1	1
7	6	5.7	0.3	0.09
8	7	6.7	0.3	0.09
9	7	6.7	0.3	0.09
10	7	6.3	0.7	0.49
11	8	7.3	0.7	0.49
12	5.7	5	0.7	0.49
13	5.5	4.5	1	1
14	7	7	0	0
15	6.3	5	1.3	1.69
16	7	5.7	1.3	1.69
17	7.5	7	0.5	0.25
18	8.3	8	0.3	0.09
19	6.3	6	0.3	0.09
20	3	2	1	1
21	3.3	2.7	0.6	0.36
22	4.7	3.3	1.4	1.96
23	3.3	2.3	1	1
24	8.7	8	0.7	0.49
25	7	6.7	0.3	0.09
26	8.5	8.5	0	0
27	8	7	1	1
28	7	6.5	0.5	0.25
29	6.5	6.5	0	0
30	6.7	4	2.7	7.29
31	6	5	1	1
32	9	8.7	0.3	0.09
33	8	8	0	0
34	4.7	4.7	0	0
35	3	3	0	0
36	7.3	7	0.3	0.09
37	4.7	3	1.7	2.89
38	9	9	0	0
39	8.5	7	1.5	2.25
40	6.5	6	0.5	0.25
41	7.5	7	0.5	0.25
42	3.7	3.3	0.4	0.16
43	8.7	8	0.7	0.49
sum	285.3	257.4	27.9	30.61
ave	6.635	5.986	0.649	

SD**2= 0.00693
SD= 0.08322
D/SD= 7.79669 **
DF= 42

n= 43

ave 9521 = 6.63488
ave 9531 = 5.98605

Table 1. Variety 9521 (X1) vs '9531' (X2) for yield in bushels/acre.

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Data is presented separately for 1988, 1989 and 1990 with overall statistics following.

REP	X1	X2	X1-X2	(X1-X2)2	
1988					
1	38.5	37.9	0.6	0.36	SD**2= 5.2214
2	54.4	53.4	1	1	SD= 2.28504
3	65.5	60.8	4.7	22.09	D/SD= 1.8468 ns
4	63.6	50.7	12.9	166.41	DF= 4
5	43.9	42	1.9	3.61	
					n= 5
sum	265.9	244.8	21.1	193.47	ave 9521 = 53.18
ave	53.18	48.96	4.22		ave 9531 = 48.96
1989					
6	39.9	39.9	0	0	SD**2= 0.83961
7	54.3	52.4	1.9	3.61	SD= 0.9163
8	46.8	41.2	5.6	31.36	D/SD= 2.60103 *
9	42.8	38.2	4.6	21.16	DF= 5
10	49.8	48.1	1.7	2.89	
11	52.7	52.2	0.5	0.25	n= 6
sum	286.3	272	14.3	59.27	ave 9521 = 47.7167
ave	47.72	45.33	2.383		ave 9531 = 45.3333
1990					
12	48	45	3	9	SD**2= 0.50165
13	50.3	37.7	12.6	158.76	SD= 0.70827
14	48.3	41	7.3	53.29	D/SD= 6.28626 **
15	41.6	36.1	5.5	30.25	DF= 20
16	65.4	58.3	7.1	50.41	
17	44.8	41.9	2.9	8.41	n= 21
18	45.2	44.2	1	1	
19	23.4	20.8	2.6	6.76	ave 9521 = 49.2143
20	57.5	49.4	8.1	65.61	ave 9531 = 44.7619
21	45.3	39.4	5.9	34.81	
22	56.4	56.4	0	0	
23	54.4	48.3	6.1	37.21	
24	39.4	35.7	3.7	13.69	
25	28.4	20.8	7.6	57.76	
26	55.3	54.7	0.6	0.36	
27	63.8	59.2	4.6	21.16	
28	60	53	7	49	
29	42.2	40.5	1.7	2.89	
30	44.8	44.3	0.5	0.25	
31	61.5	56.4	5.1	26.01	
32	57.5	56.9	0.6	0.36	
sum	1034	940	93.5	626.99	
ave	49.21	44.76	4.452		

//

OVERALL

1	38.5	37.9	0.6	0.36
2	54.4	53.4	1	1
3	65.5	60.8	4.7	22.09
4	63.6	50.7	12.9	166.41
5	43.9	42	1.9	3.61
6	39.9	39.9	0	0
7	54.3	52.4	1.9	3.61
8	46.8	41.2	5.6	31.36
9	42.8	38.2	4.6	21.16
10	49.8	48.1	1.7	2.89
11	52.7	52.2	0.5	0.25
12	48	45	3	9
13	50.3	37.7	12.6	158.76
14	48.3	41	7.3	53.29
15	41.6	36.1	5.5	30.25
16	65.4	58.3	7.1	50.41
17	44.8	41.9	2.9	8.41
18	45.2	44.2	1	1
19	23.4	20.8	2.6	6.76
20	57.5	49.4	8.1	65.61
21	45.3	39.4	5.9	34.81
22	56.4	56.4	0	0
23	54.4	48.3	6.1	37.21
24	39.4	35.7	3.7	13.69
25	28.4	20.8	7.6	57.76
26	55.3	54.7	0.6	0.36
27	63.8	59.2	4.6	21.16
28	60	53	7	49
29	42.2	40.5	1.7	2.89
30	44.8	44.3	0.5	0.25
31	61.5	56.4	5.1	26.01
32	57.5	56.9	0.6	0.36
sum	1586	1457	128.9	879.73
ave	49.55	45.53	4.028	

SD**2=	0.36341
SD=	0.60284
D/SD=	6.68195 **
DF=	31
n=	32

ave 9521 = 49.5531
ave 9531 = 45.525